DON’T PANIC!

THERE’S A FORM FOR THAT!

PRESENTED BY JAN BROMBERG – KE7DXY

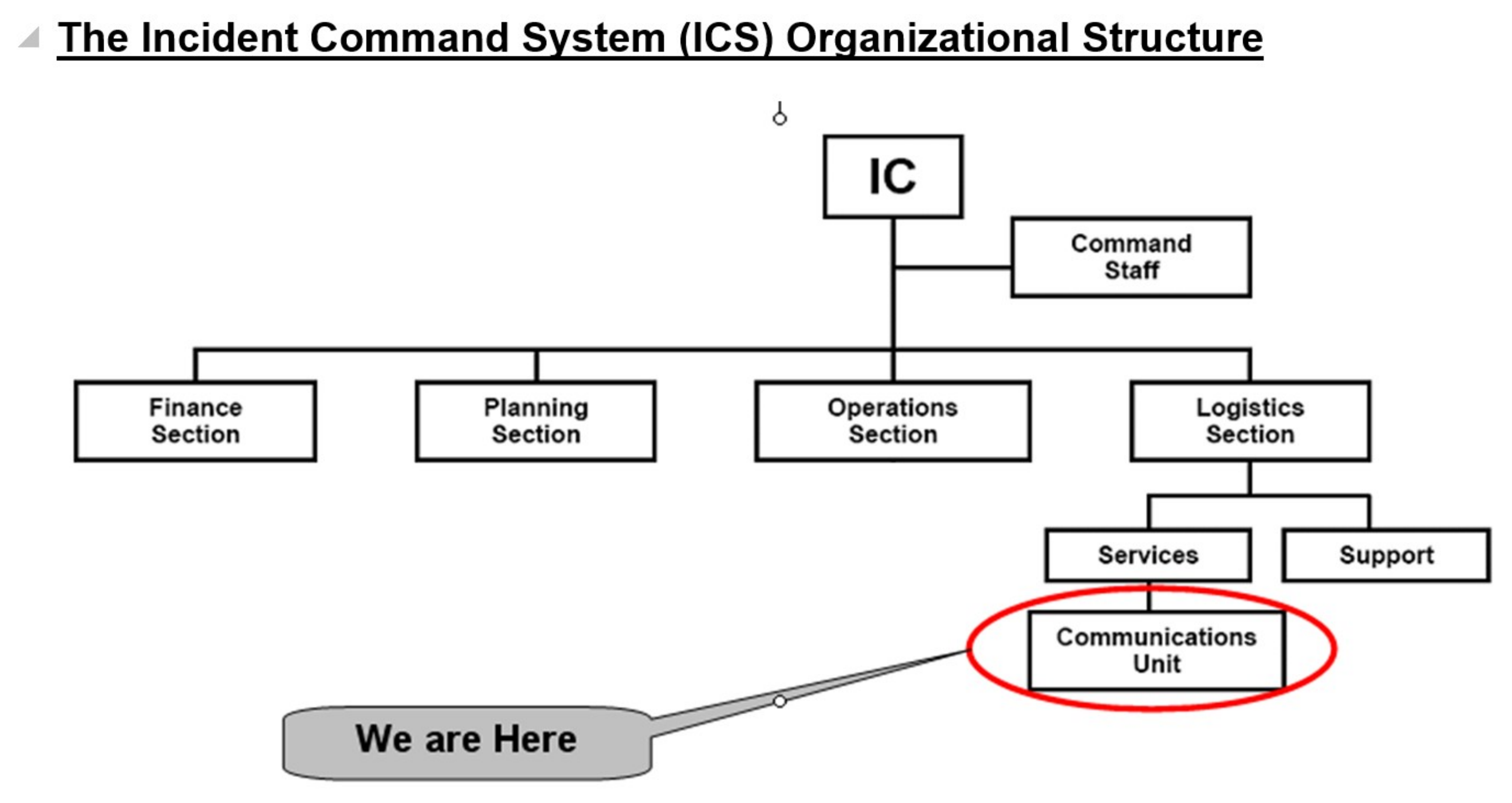
Jon Bromberg (Yes Her Husbands) – W1JDB
FEMA All Hazard COM-L/COM-T
Eastside Fire & Rescue Communications COM-L
Eastside Fire Corps Program Manager

WHAT WE WILL COVER

- Quick dive into ICS and the Communication Unit
- What to consider in developing a communications plan
- Why “interoperability”?
- Why use ICS?
- Creating your communications plan with ICS
    - Forms and more forms
- Practice ICS 205
- Additional resources
- Questions

INCIDENT COMMAND SYSTEM OVERVIEW

INCIDENT COMMAND SYSTEM OVER



The Incident Command System (ICS) Organizational Structure

INCIDENT COMMAND COM UNIT

Primary positions in All Hazards Response

- Com Unit Leader – COM-L (1)
  - Works with the Command Staff to determine overall communications needs and necessary resources
  - Creates the incident communications plan
  - Maintains accountability for all communications and interoperability
  - Directs the COM-T(s), RADOS and other support personnel
  - All planning and talk – all the time

- Com Tech – COMT (1+)
  - Responsible for the installation and maintenance of communications equipment
  - Works directly for the COM-L
  - Actually “does work” and makes it all happen

- Radio Operator – RADO (1+)
  - Staffs and operates radios in the EOC, mobile van, in the field, etc.
  - Responsible for documenting incoming/outgoing radio

INCIDENT COMMAND COM UNIT

I have been promoting a new position due to the high value and additional expertise needed in the digital communications area

- Radio Operator Digital – RADO-D (1+)
    - Staffs and operates digital communications radios and support equipment
    - Responsible for documenting incoming/outgoing traffic and routing as necessary
    - Generally Winlink (email over radio), satellite email, etc.

The Com Unit structure was designed to support “events” however, the same format can easily be applied to Citizen Corps responders (CERT, MRC, Fire Corps) and HAM radio support teams (ARES/RACES)

ACCESSING COMMUNICATIONS NEEDS

DETERMINING NEEDS

1. Determine what the needs are first. Find out what the **“ask”** is
    - What types of communications resources are needed?
    - Who needs to talk to whom?
    - What areas need to be covered?
    - How many different communications paths are necessary to maintain order and information clarity?
    - What is the area that needs to be covered
    - What is your served agency’s expectations?
    - Is there funding/support available?

2. Develop the **“answer”**
    - What equipment, staffing, facilities are needed?
    - What resources do you have available?
    - Will your plan require MOUs/agreements?
        - HAM repeaters, adjacent areas, etc.

DETERMINING NEEDS

3. Fundamentals
   - Simple is best – avoid complex solutions
     - Simple = less training
     - Simple = easier to find and fix issues
     - Simple = less costly (usually)
   - Space, need for mobility, access
   - Resources necessary to operate
     - Space, power, redundant power, antenna locations, etc.
     - Dedicated space or set-up every time needed
   - Technical support availability
   - Operating personnel
   - Back-up equipment plan

4. Interoperability
   - Who else do you need to communicate with outside of your team/agency or jurisdiction to be successful?
   - Who are the stakeholders?

WHY PLAN FOR INTEROPERABILITY?

- Communications interoperability refers to the ability to communicate ***across jurisdictions and disciplines*** to support incident management when needed and as authorized
  - A coordinated utilization of these frequencies will give you access to personnel, resources and information within your region

- Interoperability planning allows successful communication up and down in your support organization as well as across departments and/or jurisdictions
  - Decreases the likelihood of interference
  - Creates the ability to pre-plan how to contact various entities and how they contact you
  - Allows the integration of backup resources
    - National and regional interoperability frequencies
      - Public service 800/700 MHz, VHF & UHF
  - Provides “redundant” paths

INTEROPERABILITY
WHAT DO YOU HAVE ACCESS TO?

- Public Service – Part 90 Radio
  - VHF-Low, VHF and UHF frequencies
  - 700/800 Conventional frequencies
  - Many agencies have existing licenses maintained from 15+ years ago
  - Allows access to non Federal NIFOG frequencies

- Amateur Radio – Part 97 Radio
  - Voice
  - Digital modes including email via RF – Winlink email system
  - APRS positioning and messaging

- Satellite voice and data

- Other

WHY USE ICS?

- Like all ICS forms, those used by the Communications Unit are standardized
- The necessary information is “compartmentalized” for ease of use and quick integration
- The information is clear, concise and “easy” to understand
- The format provides for quick importing and exporting of information between stakeholders agencies, etc.
- ICS Command Staff “expect” the ICS format
- Why “roll your own”?

CREATING YOUR COMMUNICATION PLAN WITH ICS

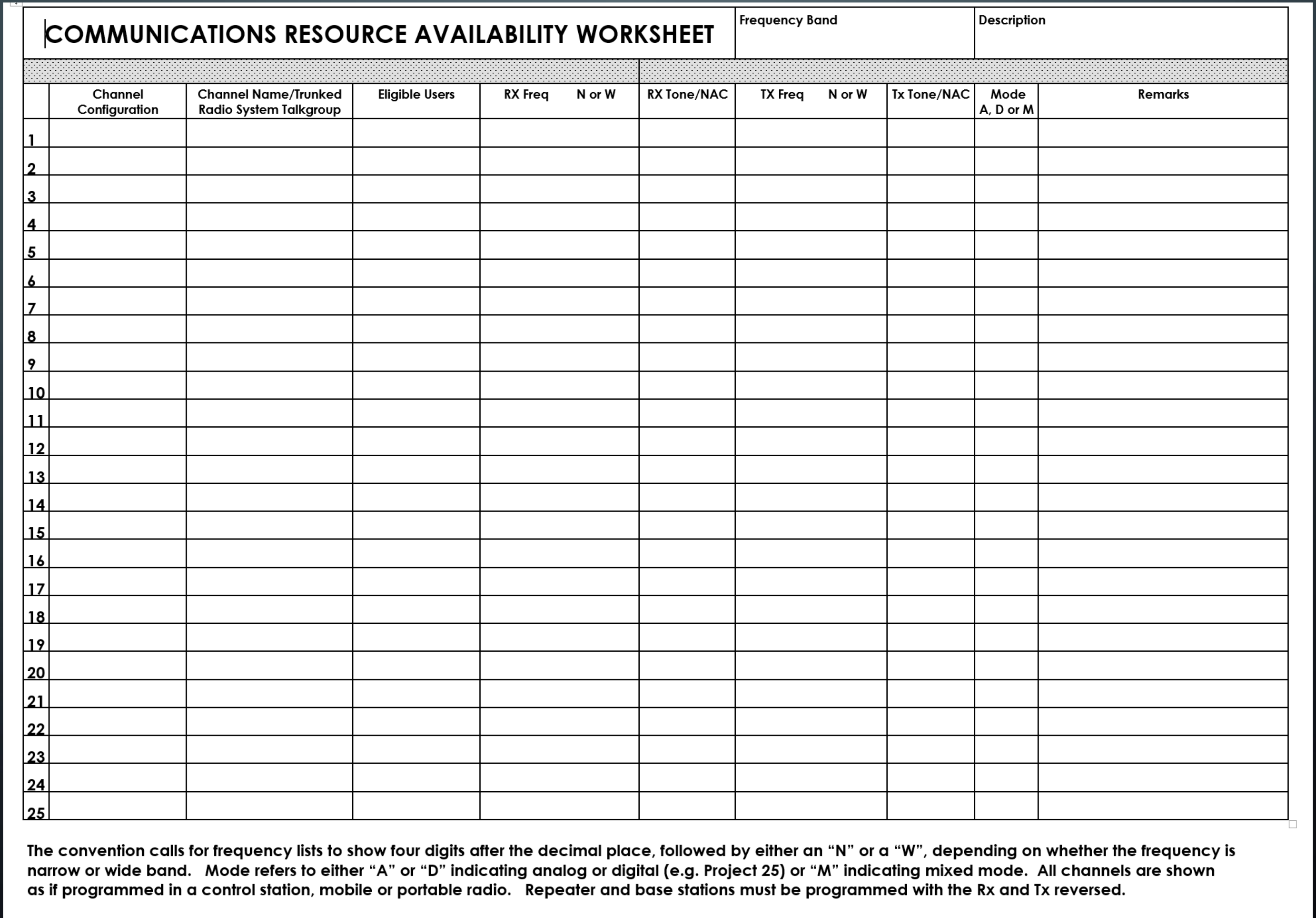
THE ICS FORMS

- Pre-Planning
  - ICS 217 – Communications Resource Availability
- Planning
  - ICS 205 – Communications Plan
- Operational
  - ICS 205A – Communications List
  - ICS 213 – Standard Message Form
  - ICS 309 – Communications Log

THE ICS 217

- Basically a listing of available frequency resources in your area
- Populate it with all of the known talk-groups, frequencies (simplex, repeater), etc. and keep it up to date
  - You will need cooperation from adjacent agencies, cities, etc.
- ICS 205s are generally created from a subset of the ICS 217

ICS 217 – COMMUNICATIONS AVAILABILITY



COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET

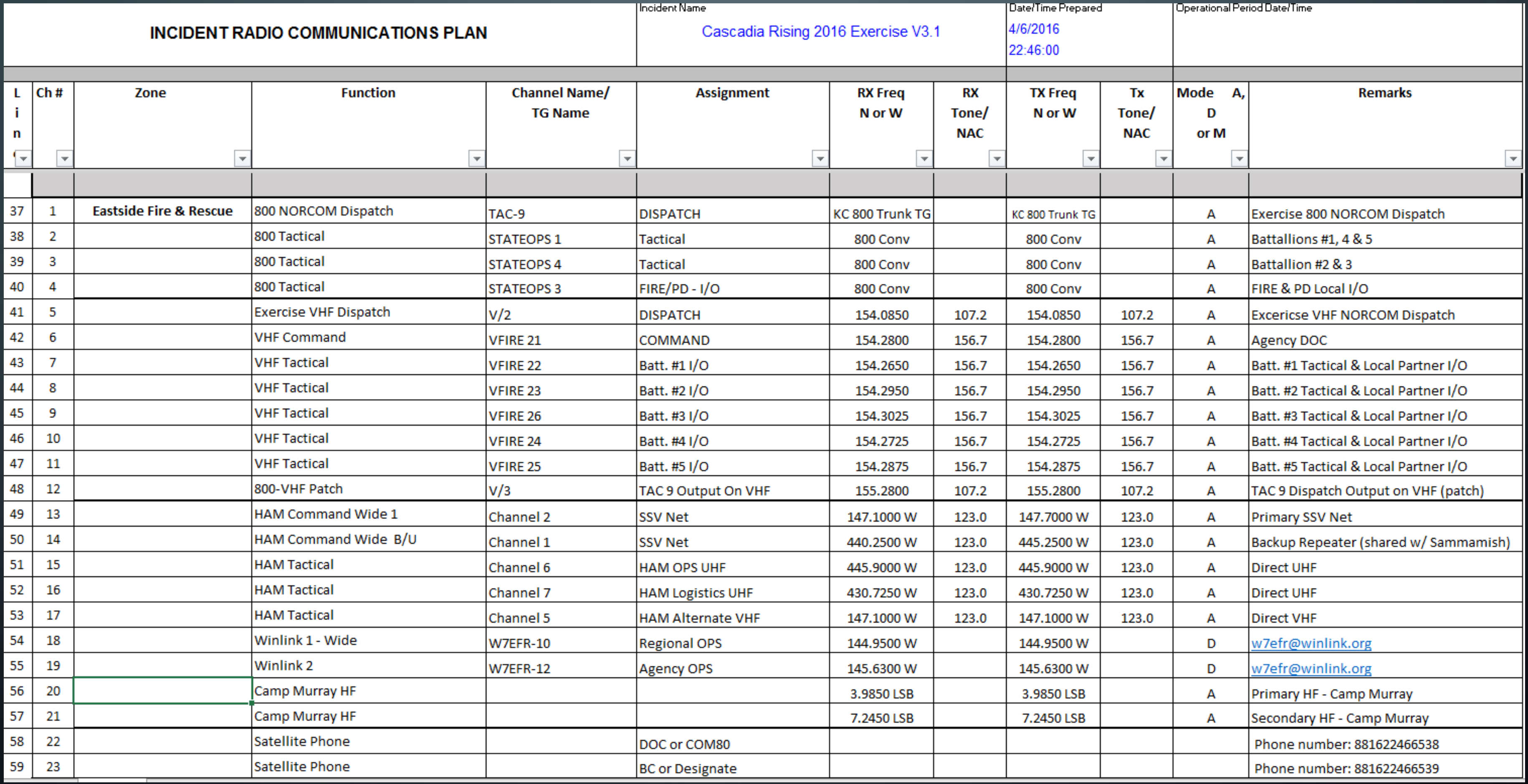
Frequency Band

Description

	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D or M	Remarks
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

The convention calls for frequency lists to show four digits after the decimal place, followed by either an "N" or a "W", depending on whether the frequency is narrow or wide band. Mode refers to either "A" or "D" indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode. All channels are shown as if programmed in a control station, mobile or portable radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS 217 – EXAMPLE



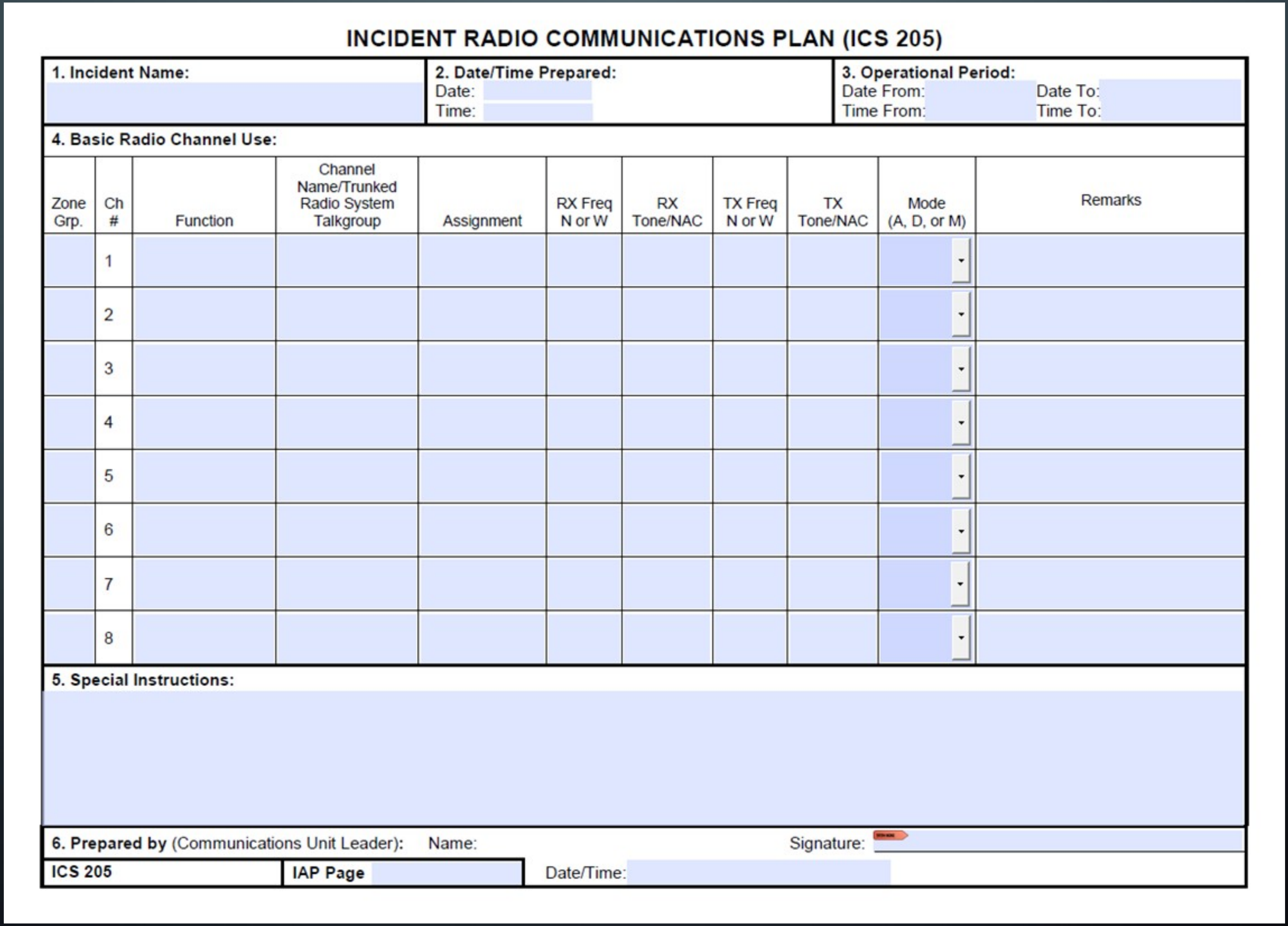
INCIDENT RADIO COMMUNICATIONS PLAN	Incident Name Cascadia Rising 2016 Exercise V3.1	Date/Time Prepared 4/6/2016 22:46:00	Operational Period Date/Time

Lin	Ch #	Zone	Function	Channel Name/ TG Name	Assignment	RX Freq N or W	RX Tone/ NAC	TX Freq N or W	Tx Tone/ NAC	Mode A, D or M	Remarks
37	1	**Eastside Fire & Rescue**	800 NORCOM Dispatch	TAC-9	DISPATCH	KC 800 Trunk TG		KC 800 Trunk TG		A	Exercise 800 NORCOM Dispatch
38	2		800 Tactical	STATEOPS 1	Tactical	800 Conv		800 Conv		A	Battallions #1, 4 & 5
39	3		800 Tactical	STATEOPS 4	Tactical	800 Conv		800 Conv		A	Battallion #2 & 3
40	4		800 Tactical	STATEOPS 3	FIRE/PD - I/O	800 Conv		800 Conv		A	FIRE & PD Local I/O
41	5		Exercise VHF Dispatch	V/2	DISPATCH	154.0850	107.2	154.0850	107.2	A	Excericse VHF NORCOM Dispatch
42	6		VHF Command	VFIRE 21	COMMAND	154.2800	156.7	154.2800	156.7	A	Agency DOC
43	7		VHF Tactical	VFIRE 22	Batt. #1 I/O	154.2650	156.7	154.2650	156.7	A	Batt. #1 Tactical & Local Partner I/O
44	8		VHF Tactical	VFIRE 23	Batt. #2 I/O	154.2950	156.7	154.2950	156.7	A	Batt. #2 Tactical & Local Partner I/O
45	9		VHF Tactical	VFIRE 26	Batt. #3 I/O	154.3025	156.7	154.3025	156.7	A	Batt. #3 Tactical & Local Partner I/O
46	10		VHF Tactical	VFIRE 24	Batt. #4 I/O	154.2725	156.7	154.2725	156.7	A	Batt. #4 Tactical & Local Partner I/O
47	11		VHF Tactical	VFIRE 25	Batt. #5 I/O	154.2875	156.7	154.2875	156.7	A	Batt. #5 Tactical & Local Partner I/O
48	12		800-VHF Patch	V/3	TAC 9 Output On VHF	155.2800	107.2	155.2800	107.2	A	TAC 9 Dispatch Output on VHF (patch)
49	13		HAM Command Wide 1	Channel 2	SSV Net	147.1000 W	123.0	147.7000 W	123.0	A	Primary SSV Net
50	14		HAM Command Wide B/U	Channel 1	SSV Net	440.2500 W	123.0	445.2500 W	123.0	A	Backup Repeater (shared w/ Sammamish)
51	15		HAM Tactical	Channel 6	HAM OPS UHF	445.9000 W	123.0	445.9000 W	123.0	A	Direct UHF
52	16		HAM Tactical	Channel 7	HAM Logistics UHF	430.7250 W	123.0	430.7250 W	123.0	A	Direct UHF
53	17		HAM Tactical	Channel 5	HAM Alternate VHF	147.1000 W	123.0	147.1000 W	123.0	A	Direct VHF
54	18		Winlink 1 - Wide	W7EFR-10	Regional OPS	144.9500 W		144.9500 W		D	w7efr@winlink.org
55	19		Winlink 2	W7EFR-12	Agency OPS	145.6300 W		145.6300 W		D	w7efr@winlink.org
56	20		Camp Murray HF			3.9850 LSB		3.9850 LSB		A	Primary HF - Camp Murray
57	21		Camp Murray HF			7.2450 LSB		7.2450 LSB		A	Secondary HF - Camp Murray
58	22		Satellite Phone		DOC or COM80						Phone number: 881622466538
59	23		Satellite Phone		BC or Designate						Phone number: 881622466539

THE ICS 205

- Commonly a sub-set of the ICS 217
- Can be created in advance for a specific type of response
  - Ex. windstorm or electrical outage
- Often created “on the fly” by the COML or Com Lead for specific incidents
- This is the primary reference for all communicators involved in support
- May be updated frequently as conditions and/or event requires
  - Ex. area has expanded, additional paths needed, issues with interference, etc.

ICS 205 – COMMUNICATIONS PLAN



INCIDENT RADIO COMMUNICATIONS PLAN (ICS 205)

1. Incident Name:

2. Date/Time Prepared:
Date:
Time:

3. Operational Period:
Date From: Date To:
Time From: Time To:

4. Basic Radio Channel Use:

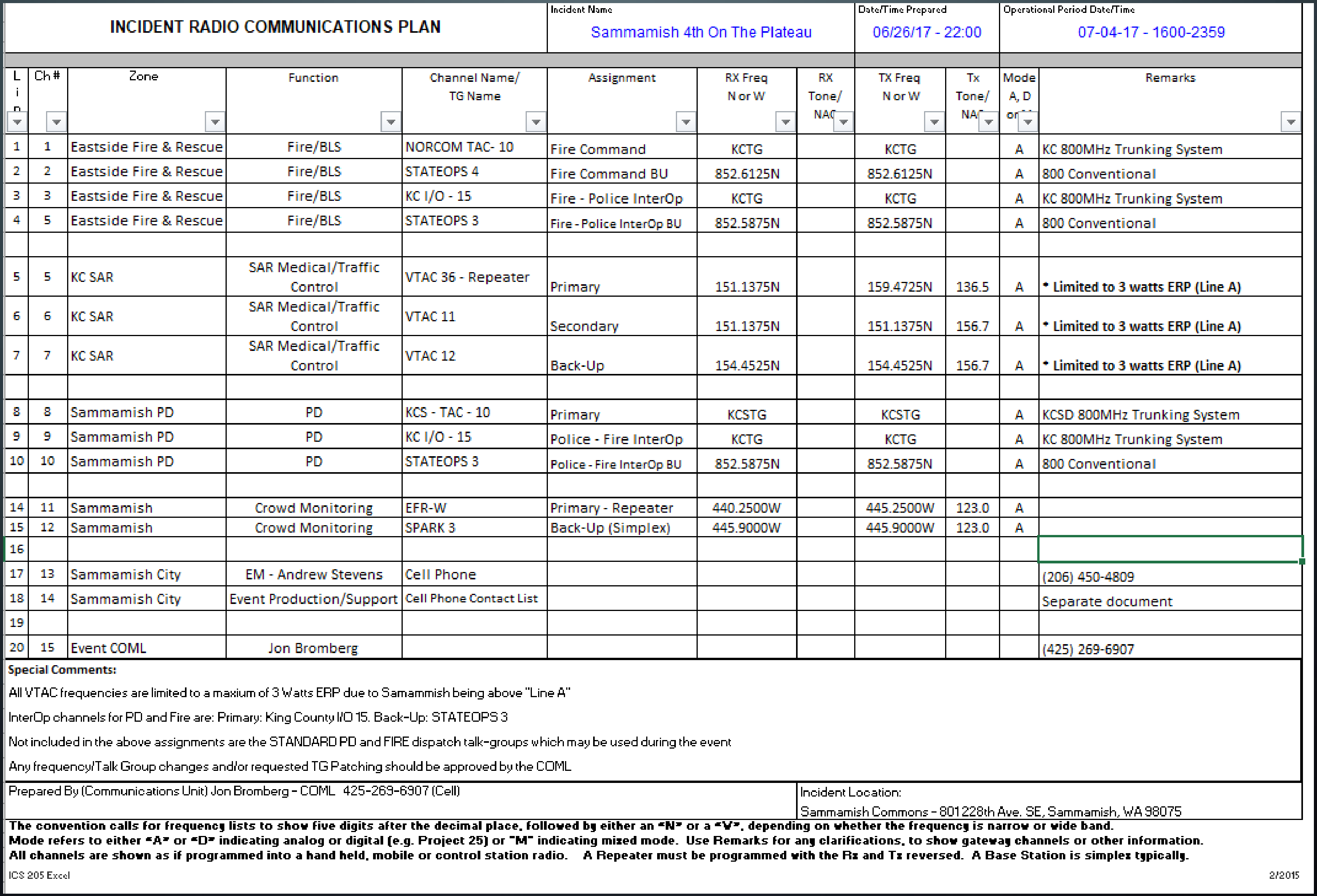
Zone Grp.	Ch #	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq N or W	RX Tone/NAC	TX Freq N or W	TX Tone/NAC	Mode (A, D, or M)	Remarks
	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									

5. Special Instructions:

6. Prepared by (Communications Unit Leader): Name: Signature:

ICS 205 **IAP Page** Date/Time:

ICS 205 – EXAMPLE



INCIDENT RADIO COMMUNICATIONS PLAN	Incident Name Sammamish 4th On The Plateau	Date/Time Prepared 06/26/17 - 22:00	Operational Period Date/Time 07-04-17 - 1600-2359

Lin	Ch #	Zone	Function	Channel Name/ TG Name	Assignment	RX Freq N or W	RX Tone/ NAC	TX Freq N or W	Tx Tone/ NA	Mode A, D or	Remarks
1	1	Eastside Fire & Rescue	Fire/BLS	NORCOM TAC- 10	Fire Command	KCTG		KCTG		A	KC 800MHz Trunking System
2	2	Eastside Fire & Rescue	Fire/BLS	STATEOPS 4	Fire Command BU	852.6125N		852.6125N		A	800 Conventional
3	3	Eastside Fire & Rescue	Fire/BLS	KC I/O - 15	Fire - Police InterOp	KCTG		KCTG		A	KC 800MHz Trunking System
4	5	Eastside Fire & Rescue	Fire/BLS	STATEOPS 3	Fire - Police InterOp BU	852.5875N		852.5875N		A	800 Conventional
5	5	KC SAR	SAR Medical/Traffic Control	VTAC 36 - Repeater	Primary	151.1375N		159.4725N	136.5	A	* **Limited to 3 watts ERP (Line A)**
6	6	KC SAR	SAR Medical/Traffic Control	VTAC 11	Secondary	151.1375N		151.1375N	156.7	A	* **Limited to 3 watts ERP (Line A)**
7	7	KC SAR	SAR Medical/Traffic Control	VTAC 12	Back-Up	154.4525N		154.4525N	156.7	A	* **Limited to 3 watts ERP (Line A)**
8	8	Sammamish PD	PD	KCS - TAC - 10	Primary	KCSTG		KCSTG		A	KCSD 800MHz Trunking System
9	9	Sammamish PD	PD	KC I/O - 15	Police - Fire InterOp	KCTG		KCTG		A	KC 800MHz Trunking System
10	10	Sammamish PD	PD	STATEOPS 3	Police - Fire InterOp BU	852.5875N		852.5875N		A	800 Conventional
14	11	Sammamish	Crowd Monitoring	EFR-W	Primary - Repeater	440.2500W		445.2500W	123.0	A	
15	12	Sammamish	Crowd Monitoring	SPARK 3	Back-Up (Simplex)	445.9000W		445.9000W	123.0	A	
16											
17	13	Sammamish City	EM - Andrew Stevens	Cell Phone							(206) 450-4809
18	14	Sammamish City	Event Production/Support	Cell Phone Contact List							Separate document
19											
20	15	Event COML	Jon Bromberg								(425) 269-6907

Special Comments:

All VTAC frequencies are limited to a maxium of 3 Watts ERP due to Samammish being above "Line A"

InterOp channels for PD and Fire are: Primary: King County I/O 15. Back-Up: STATEOPS 3

Not included in the above assignments are the STANDARD PD and FIRE dispatch talk-groups which may be used during the event

Any frequency/Talk Group changes and/or requested TG Patching should be approved by the COML

Prepared By (Communications Unit) Jon Bromberg - COML 425-269-6907 (Cell)	Incident Location: Sammamish Commons - 801 228th Ave. SE, Sammamish, WA 98075

The convention calls for frequency lists to show five digits after the decimal place, followed by either an "N" or a "W", depending on whether the frequency is narrow or wide band.
Mode refers to either "A" or "D" indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode. Use Remarks for any clarifications, to show gateway channels or other information.
All channels are shown as if programmed into a hand held, mobile or control station radio. A Repeater must be programmed with the Rx and Tx reversed. A Base Station is simplex typically.

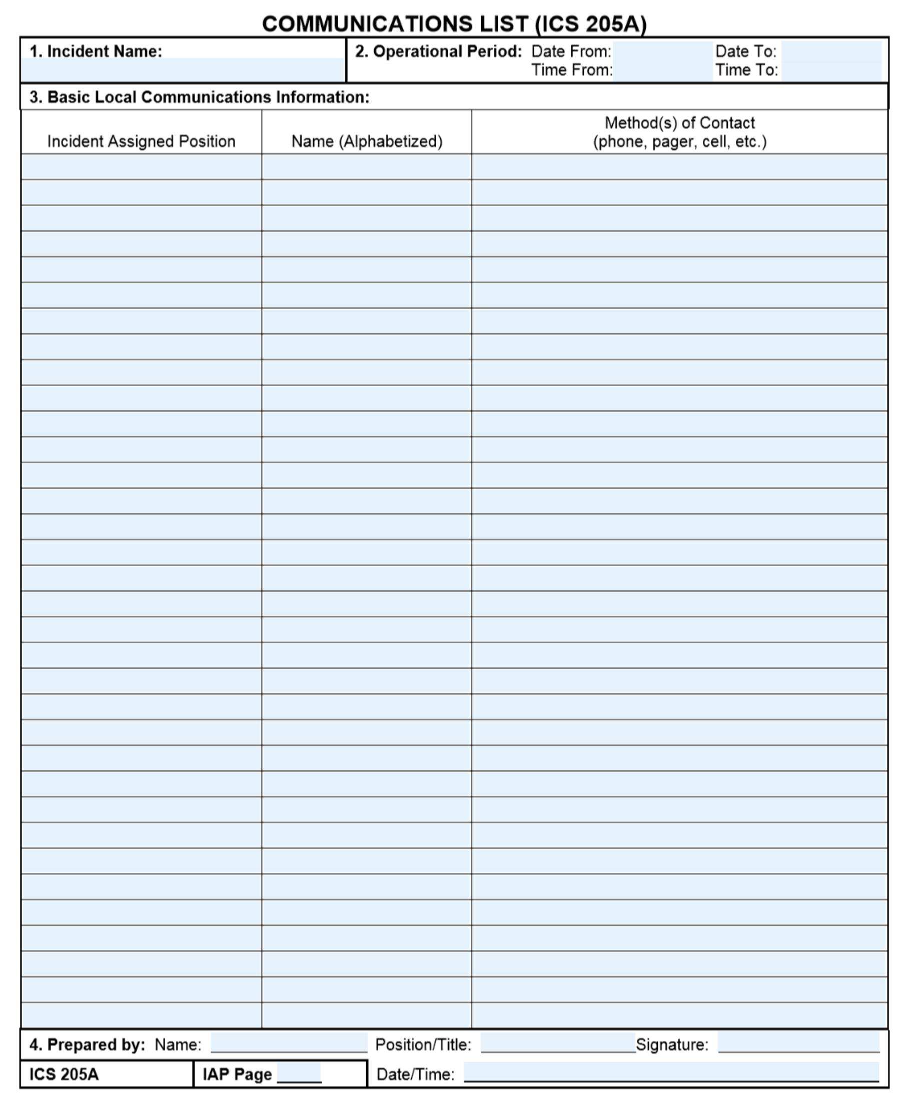
ICS 205 Excel

2/2015

THE ICS 205A

- Basically the “phonebook”
- Based on assignment and/or location
- Should list all methods of contact
  - Cell phone, email, primary channel/talkgroup, etc.
  - Updated frequently

ICS 205A – COMMUNICATIONS LIST



COMMUNICATIONS LIST (ICS 205A)

1. Incident Name:

2. Operational Period: Date From: Date To:
Time From: Time To:

3. Basic Local Communications Information:

Incident Assigned Position	Name (Alphabetized)	Method(s) of Contact (phone, pager, cell, etc.)

4. Prepared by: Name: ______________ Position/Title: ______________ Signature: ______________

ICS 205A **IAP Page** _____ Date/Time: ______________

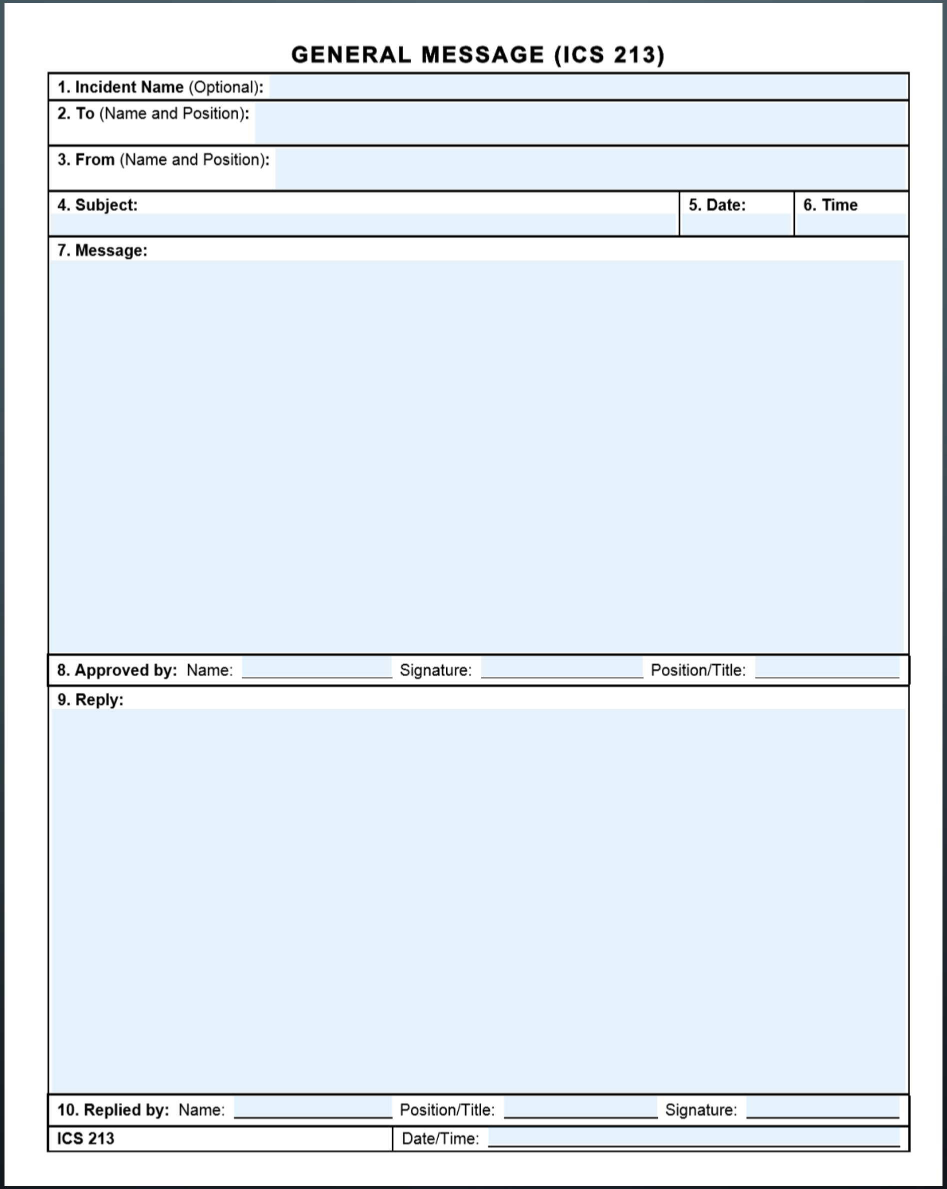
THE ICS 213

- A general 2 way messaging form utilized for passing messages, resource requests, instructions and mission information that needs to be in a hard copy format at either end of the communication path

- The form can be sent via internet, email, email over radio, runner and/or copied to/from a voice communication
  - An ICS 213RR sub-form is also available and is specific to detailed resource requests

- The form provides accountability at either end and is tracked by a message number

ICS 213 – STANDARD MESSAGE FORM



GENERAL MESSAGE (ICS 213)

1. Incident Name (Optional):

2. To (Name and Position):

3. From (Name and Position):

4. Subject: **5. Date:** **6. Time**

7. Message:

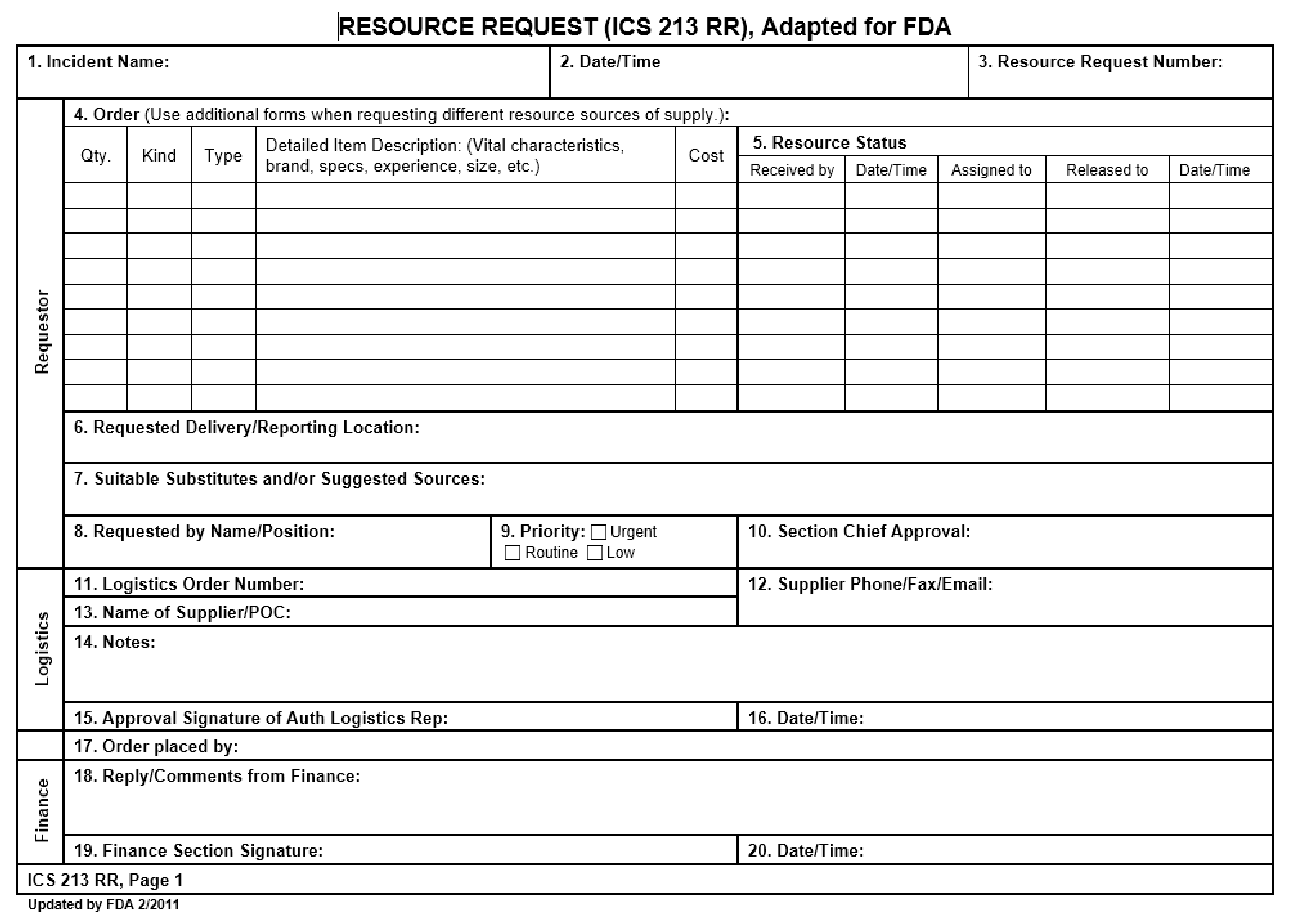
8. Approved by: Name: ________ Signature: ________ Position/Title: ________

9. Reply:

10. Replied by: Name: ________ Position/Title: ________ Signature: ________

ICS 213 Date/Time: ________

ICS 213RR – RESOURCE REQUEST FORM



RESOURCE REQUEST (ICS 213 RR), Adapted for FDA

1. Incident Name:

2. Date/Time

3. Resource Request Number:

Requestor

4. Order (Use additional forms when requesting different resource sources of supply.):

Qty.	Kind	Type	Detailed Item Description: (Vital characteristics, brand, specs, experience, size, etc.)	Cost	**5. Resource Status**				
					Received by	Date/Time	Assigned to	Released to	Date/Time

6. Requested Delivery/Reporting Location:

7. Suitable Substitutes and/or Suggested Sources:

8. Requested by Name/Position:

9. Priority: ☐ Urgent ☐ Routine ☐ Low

10. Section Chief Approval:

Logistics

11. Logistics Order Number:

12. Supplier Phone/Fax/Email:

13. Name of Supplier/POC:

14. Notes:

15. Approval Signature of Auth Logistics Rep:

16. Date/Time:

17. Order placed by:

Finance

18. Reply/Comments from Finance:

19. Finance Section Signature:

20. Date/Time:

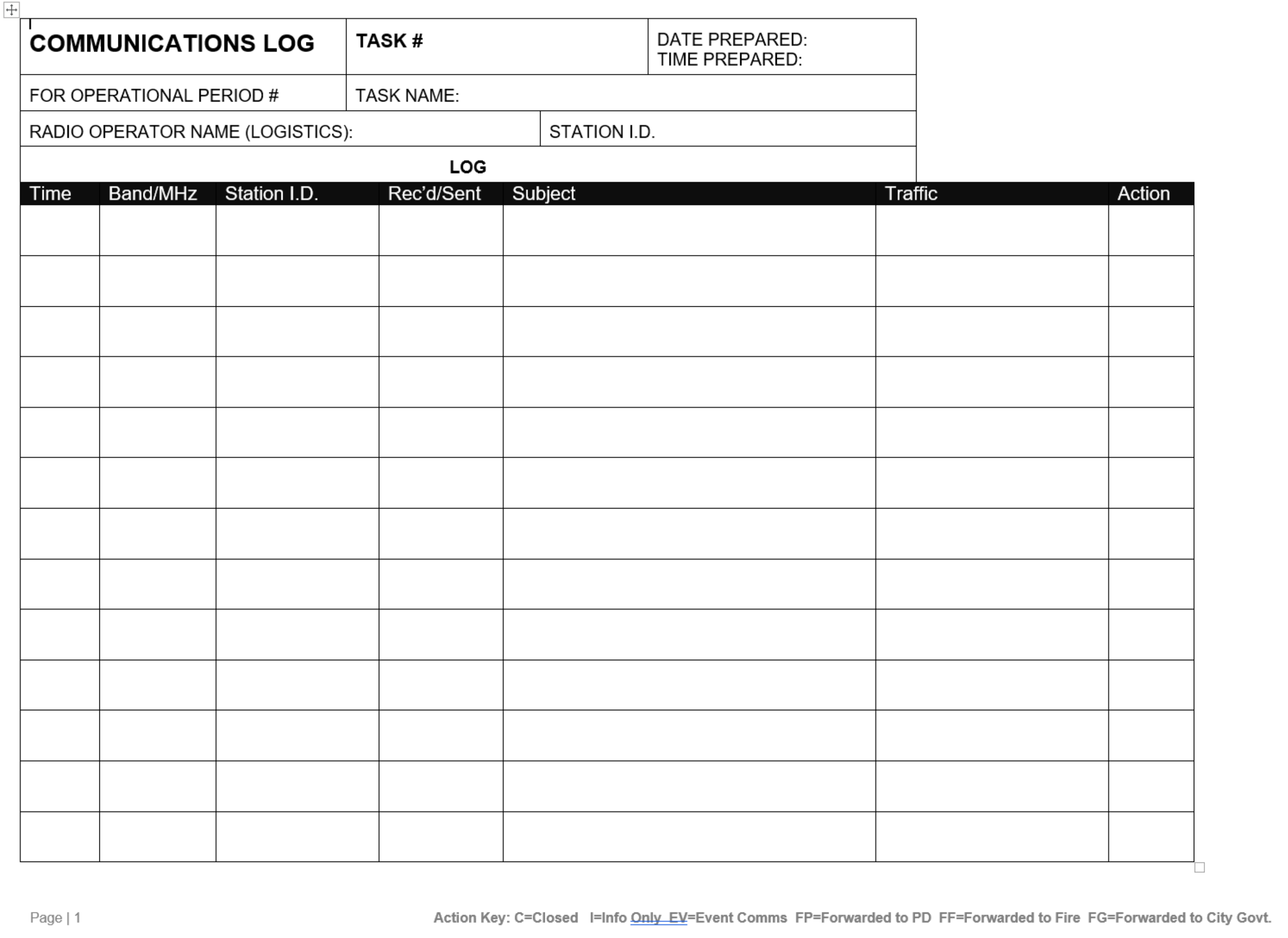
ICS 213 RR, Page 1

Updated by FDA 2/2011

THE ICS 309

- A communications log used to track all inbound and outbound voice traffic
- Collects information on:
  - Where the traffic originated
  - What frequency, talk group, channel was used
  - The subject and a synopsis of the traffic handled
  - The action or disposition of the traffic
  - Time, date, operator that handled the call, etc.
- Keeping a log is a cornerstone in message tracking
  - Just as important as documentation in other support areas

ICS 309– MESSAGE LOG



COMMUNICATIONS LOG

TASK #

DATE PREPARED:
TIME PREPARED:

FOR OPERATIONAL PERIOD #

TASK NAME:

RADIO OPERATOR NAME (LOGISTICS):

STATION I.D.

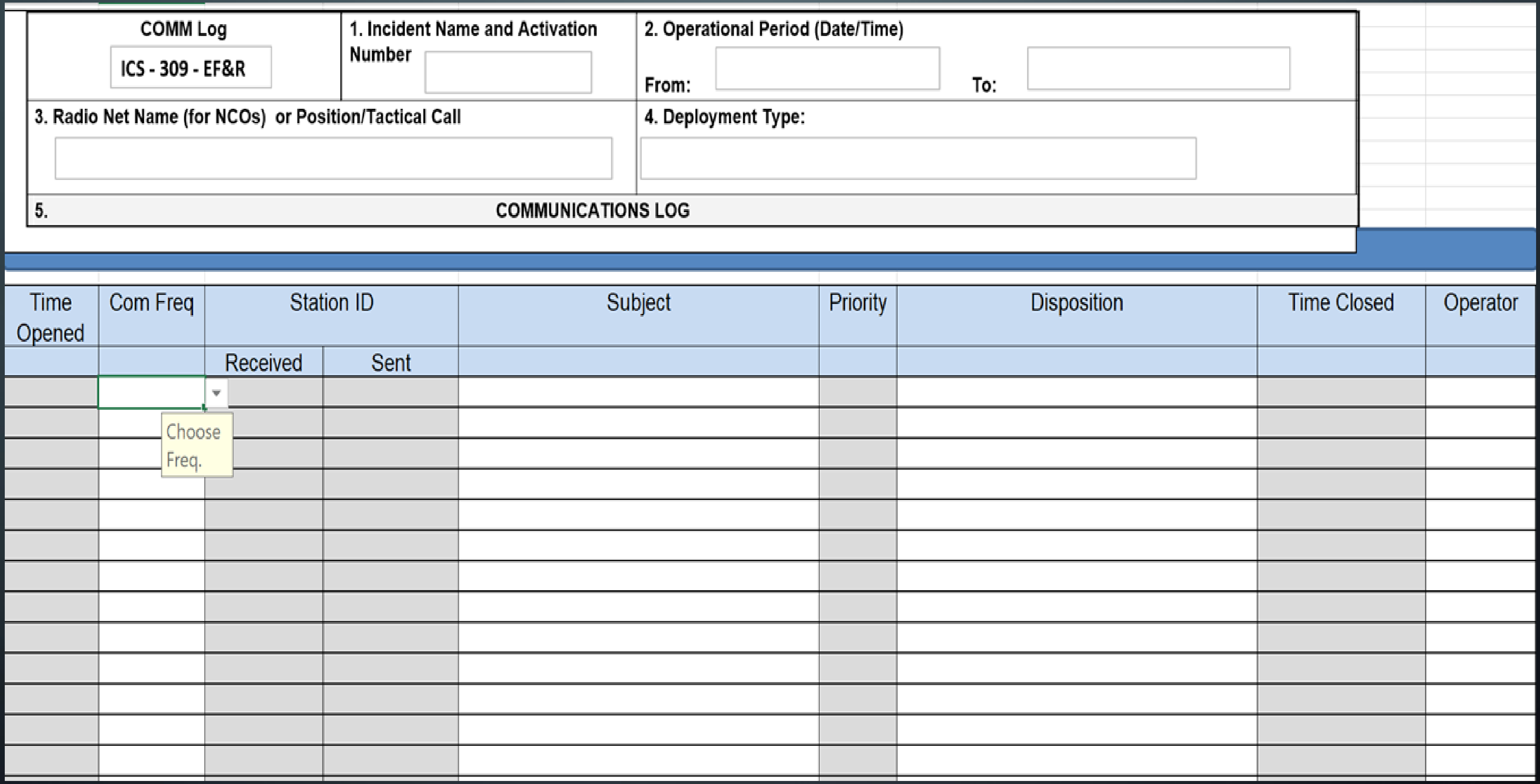
LOG

Time	Band/MHz	Station I.D.	Rec'd/Sent	Subject	Traffic	Action

Page | 1

Action Key: C=Closed I=Info Only EV=Event Comms FP=Forwarded to PD FF=Forwarded to Fire FG=Forwarded to City Govt.

ICS 309– EXAMPLE



COMM Log

ICS - 309 - EF&R

1. Incident Name and Activation Number

2. Operational Period (Date/Time)

From:

To:

3. Radio Net Name (for NCOs) or Position/Tactical Call

4. Deployment Type:

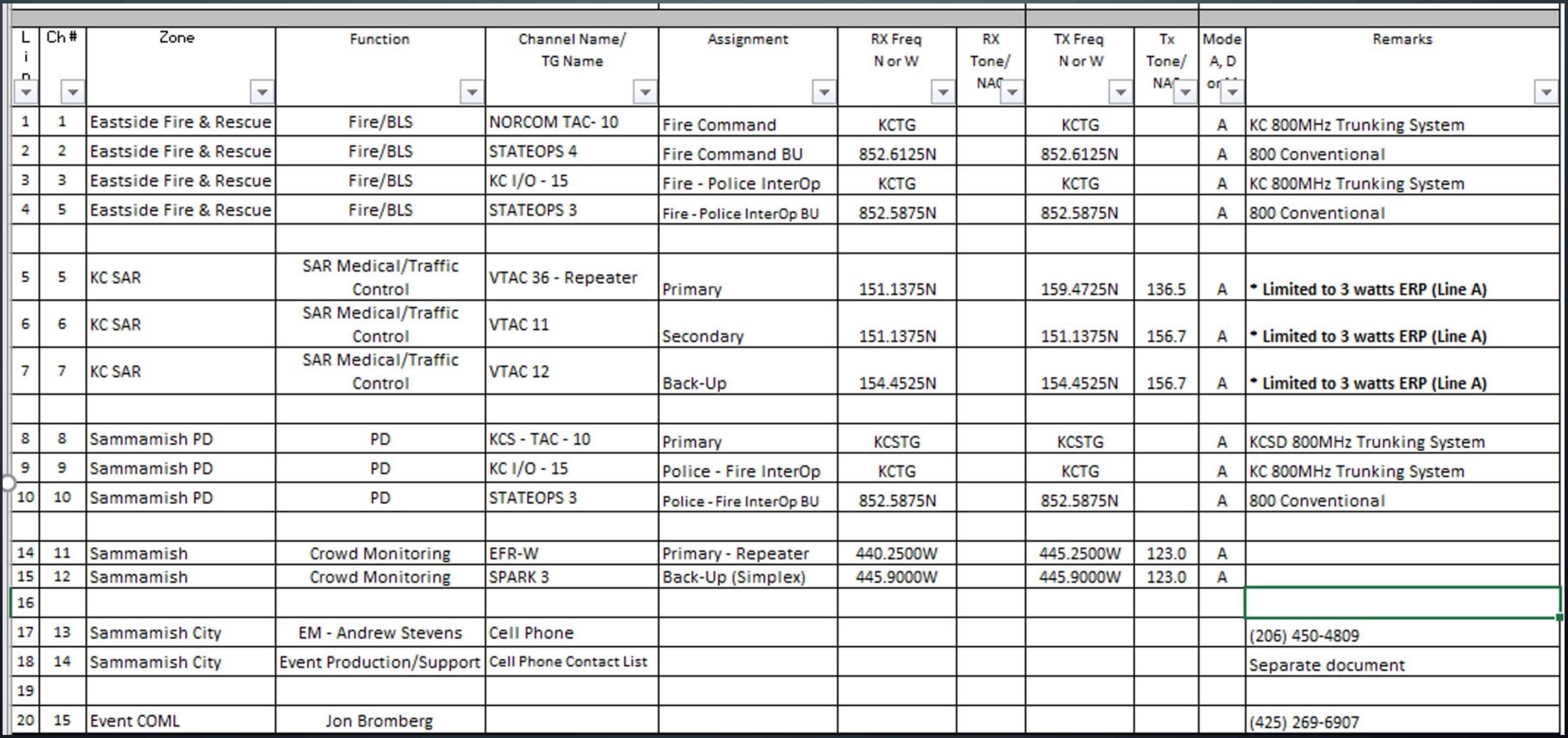
5. COMMUNICATIONS LOG

Time Opened	Com Freq	Station ID		Subject	Priority	Disposition	Time Closed	Operator
		Received	Sent					

Choose Freq.

TRY YOUR OWN ICS-205

ICS 205 – EXAMPLE FOR REFERENCE



L i	Ch #	Zone	Function	Channel Name/ TG Name	Assignment	RX Freq N or W	RX Tone/ NAC	TX Freq N or W	Tx Tone/ NA	Mode A, D or	Remarks
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5	5	KC SAR	SAR Medical/Traffic Control	VTAC 36 - Repeater	Primary	151.1375N		159.4725N	136.5	A	**• Limited to 3 watts ERP (Line A)**
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7	7	KC SAR	SAR Medical/Traffic Control	VTAC 12	Back-Up	154.4525N		154.4525N	156.7	A	**• Limited to 3 watts ERP (Line A)**
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9	9	Sammamish PD	PD	KC I/O - 15	Police - Fire InterOp	KCTG		KCTG		A	KC 800MHz Trunking System
10	10	Sammamish PD	PD	STATEOPS 3	Police - Fire InterOp BU	852.5875N		852.5875N		A	800 Conventional
14	11	Sammamish	Crowd Monitoring	EFR-W	Primary - Repeater	440.2500W		445.2500W	123.0	A	
15	12	Sammamish	Crowd Monitoring	SPARK 3	Back-Up (Simplex)	445.9000W		445.9000W	123.0	A	
16											
17	13	Sammamish City	EM - Andrew Stevens	Cell Phone							(206) 450-4809
18	14	Sammamish City	Event Production/Support	Cell Phone Contact List							Separate document
19											
20	15	Event COML	Jon Bromberg								(425) 269-6907

WINLINK HTML ICS FORMS PROCESSING

(OH RIGHT – THAT RADO-D POSITION)

WINLINK ICS FORMS MODULE

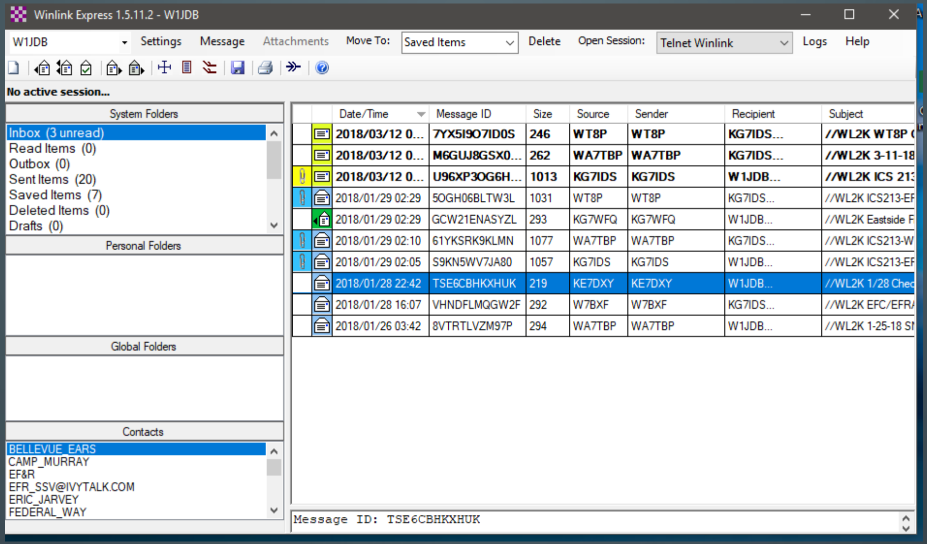
- Winlink Express provides a module that incorporates HTML ICS templates that are used to send the form data between users

- The forms are rendered in a browser window at either end to facilitate printing and/or forwarding

- Document content is contained in a small .xml data file that is transported, then can be opened and rendered
    - The actual forms are not sent, decreasing the bandwidth and time necessary for transmission

- Form content is also sent as plain text within the body of the message, formatted as best as possible, to allow viewing by anyone without the form template

WINLINK ICS FORMS MODULE



No active session...

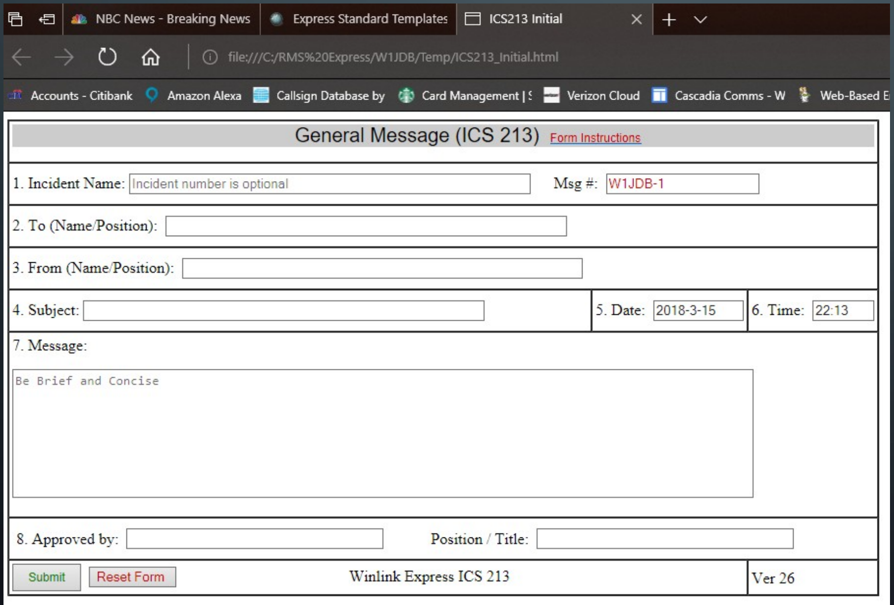
- Inbox (3 unread)
- Read Items (0)
- Outbox (0)
- Sent Items (20)
- Saved Items (7)
- Deleted Items (0)
- Drafts (0)

Contacts:

- BELLEVUE_EARS
- CAMP_MURRAY
- EF&R
- EFR_SSV@IVYTALK.COM
- ERIC_JARVEY
- FEDERAL_WAY

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
2018/03/12 0...	**7YX5I9O7ID0S**	**246**	**WT8P**	**WT8P**	**KG7IDS...**	**//WL2K WT8P**
2018/03/12 0...	**M6GUJ8GSX0...**	**262**	**WA7TBP**	**WA7TBP**	**KG7IDS...**	**//WL2K 3-11-18**
2018/03/12 0...	**U96XP3OG6H...**	**1013**	**KG7IDS**	**KG7IDS**	**W1JDB...**	**//WL2K ICS 21**
2018/01/29 02:29	5OGH06BLTW3L	1031	WT8P	WT8P	KG7IDS...	//WL2K ICS213-EF
2018/01/29 02:29	GCW21ENASYZL	293	KG7WFQ	KG7WFQ	W1JDB...	//WL2K Eastside F
2018/01/29 02:10	61YKSRK9KLMN	1077	WA7TBP	WA7TBP	KG7IDS...	//WL2K ICS213-W
2018/01/29 02:05	S9KN5WV7JA80	1057	KG7IDS	KG7IDS	W1JDB...	//WL2K ICS213-EF
2018/01/28 22:42	TSE6CBHKXHUK	219	KE7DXY	KE7DXY	W1JDB...	//WL2K 1/28 Chec
2018/01/28 16:07	VHNDFLMQGW2F	292	W7BXF	W7BXF	KG7IDS...	//WL2K EFC/EFR
2018/01/26 03:42	8VTRTLVZM97P	294	WA7TBP	WA7TBP	W1JDB...	//WL2K 1-25-18 S

Message ID: TSE6CBHKXHUK



General Message (ICS 213)

1. Incident Name: Incident number is optional Msg #: W1JDB-1

2. To (Name/Position):

3. From (Name/Position):

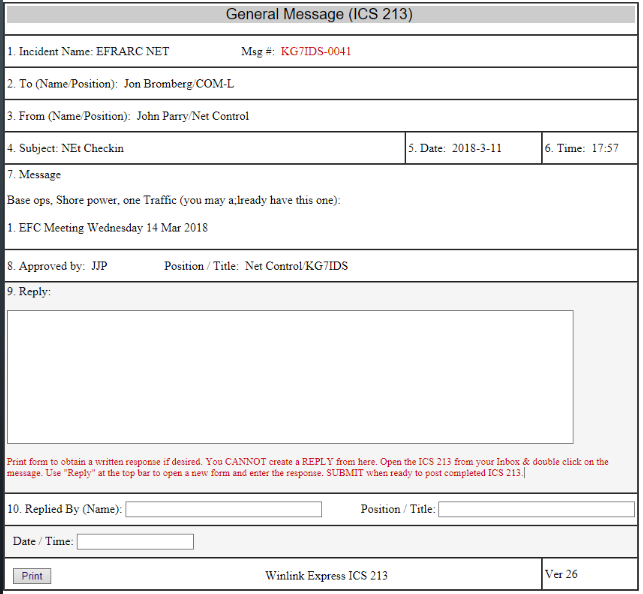
4. Subject: 5. Date: 2018-3-15 6. Time: 22:13

7. Message:

Be Brief and Concise

8. Approved by: Position / Title:

Winlink Express ICS 213 Ver 26



General Message (ICS 213)

1. Incident Name: EFRARC NET Msg #: KG7IDS-0041

2. To (Name/Position): Jon Bromberg/COM-L

3. From (Name/Position): John Parry/Net Control

4. Subject: NEt Checkin 5. Date: 2018-3-11 6. Time: 17:57

7. Message

Base ops, Shore power, one Traffic (you may a;lready have this one):

1. EFC Meeting Wednesday 14 Mar 2018

8. Approved by: JJP Position / Title: Net Control/KG7IDS

9. Reply:

Print form to obtain a written response if desired. You CANNOT create a REPLY from here. Open the ICS 213 from your Inbox & double click on the message. Use "Reply" at the top bar to open a new form and enter the response. SUBMIT when ready to post completed ICS 213.

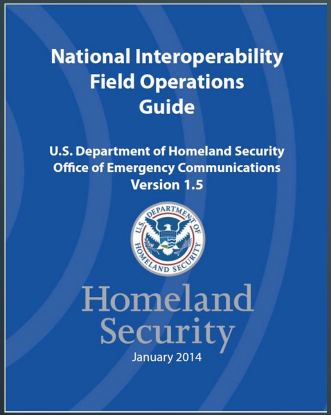
10. Replied By (Name): Position / Title:

Date / Time:

Winlink Express ICS 213 Ver 26

ADDITIONAL RESOURCES

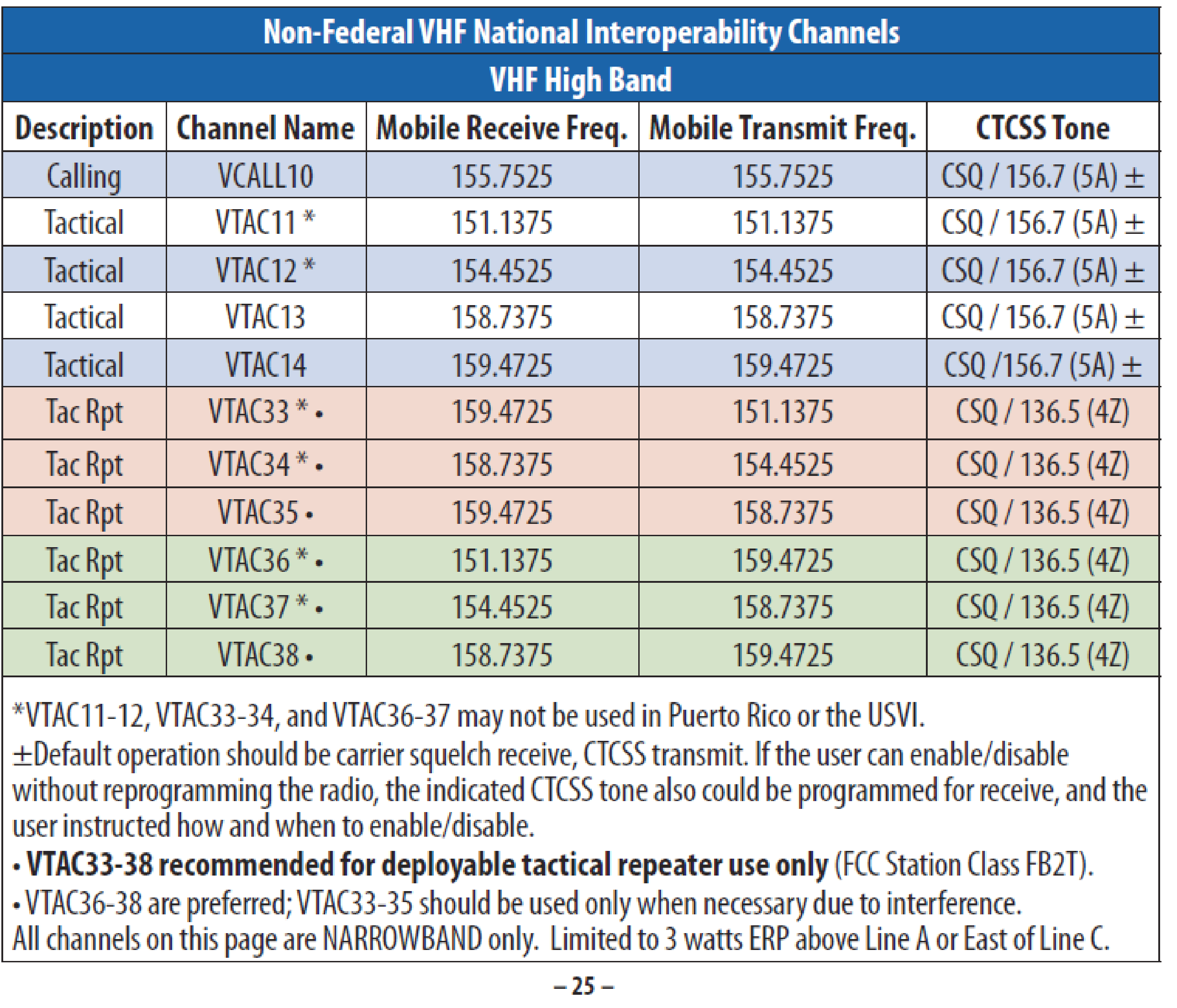
NIFOG – NATIONAL INTEROPERABILITY FIELD GUIDE



National Interoperability Field Operations Guide

U.S. Department of Homeland Security
Office of Emergency Communications
Version 1.5

Homeland Security
January 2014



Non-Federal VHF National Interoperability Channels				
VHF High Band				
Description	**Channel Name**	**Mobile Receive Freq.**	**Mobile Transmit Freq.**	**CTCSS Tone**
Calling	VCALL10	155.7525	155.7525	CSQ / 156.7 (5A) ±
Tactical	VTAC11 *	151.1375	151.1375	CSQ / 156.7 (5A) ±
Tactical	VTAC12 *	154.4525	154.4525	CSQ / 156.7 (5A) ±
Tactical	VTAC13	158.7375	158.7375	CSQ / 156.7 (5A) ±
Tactical	VTAC14	159.4725	159.4725	CSQ /156.7 (5A) ±
Tac Rpt	VTAC33 * •	159.4725	151.1375	CSQ / 136.5 (4Z)
Tac Rpt	VTAC34 * •	158.7375	154.4525	CSQ / 136.5 (4Z)
Tac Rpt	VTAC35 •	159.4725	158.7375	CSQ / 136.5 (4Z)
Tac Rpt	VTAC36 * •	151.1375	159.4725	CSQ / 136.5 (4Z)
Tac Rpt	VTAC37 * •	154.4525	158.7375	CSQ / 136.5 (4Z)
Tac Rpt	VTAC38 •	158.7375	159.4725	CSQ / 136.5 (4Z)

*VTAC11-12, VTAC33-34, and VTAC36-37 may not be used in Puerto Rico or the USVI.

±Default operation should be carrier squelch receive, CTCSS transmit. If the user can enable/disable without reprogramming the radio, the indicated CTCSS tone also could be programmed for receive, and the user instructed how and when to enable/disable.

• **VTAC33-38 recommended for deployable tactical repeater use only** (FCC Station Class FB2T).

• VTAC36-38 are preferred; VTAC33-35 should be used only when necessary due to interference.

All channels on this page are NARROWBAND only. Limited to 3 watts ERP above Line A or East of Line C.

MORE INFO

- 2018 Communications Academy – April 14-15
  - South Seattle Community College
  - www.commacademy.org
- Amateur Radio Relay League (ARRL)
  - HAM radio information and licensing
  - www.arrl.org
- ICS 205 radio planning form
  - https://www.fema.gov/media-library-data/20130726-1922-25045-3243/ics_forms_205.pdf
- eNIFOG – available for free Google Play & iTunes stores
- Winlink
  - www.winlink.org
- My email: bromberg@esf-r.org

QUESTIONS?

NOT SURE IF TO SAY THANK YOU FOR YOUR ATTENTION
OR TO THANK YOU FOR STAYING AWAKE
memegenerator.net